

Attorney Docket No. 23612.00

IN THE APPLICATION

OF

RONALD A. SOWERS

FOR A

CHRISTMAS TREE WATERING SYSTEM

CHRISTMAS TREE WATERING SYSTEM

BACKGROUND OF THE INVENTION

1. FIELD OF THE INVENTION

5 The present invention relates to Christmas tree watering systems, and more particularly to a gravity-fed, vacuum controlled Christmas tree watering system that is inexpensive to manufacture and that automatically supplies water to the water receptacle in a conventional Christmas tree stand.

2. DESCRIPTION OF THE RELATED ART

10 Because it is a common practice to display a Christmas tree for as many as two to three weeks during the holiday season, it is critically important that the Christmas tree be adequately watered to avoid drying out and presenting a fire hazard. Yet, because the Christmas tree is often positioned in a confined area
15 within a home, ensuring that the tree receives an adequate amount of water can be difficult.

This problem has been addressed in two distinct manners. First, devices that generally use a funnel secured to a convenient location on a Christmas tree with a conduit extending
20 from the funnel to the water receptacle in the Christmas tree stand have been tried. Water poured into the funnel thereby drains into the water receptacle.

Examples of these devices are provided by U.S. Pat. No. 5,349,997, issued September 27, 1994 to C.H. Rail (system for watering inside trees); U.S. Pat. Nos. 5,410,839 and 5,661,926, issued May 2, 1995 and September 2, 1997, respectively, to H.A. Granger (Christmas tree watering funnel with indicating system); U.S. Pat. No. 5,446,993, issued September 5, 1995 to J.B. Cullen (watering system for plants); U.S. Pat. No. 5,473,838, issued December 12, 1995 to W.R. Denbigh (Christmas tree watering device); U.S. Pat. No. 5,493,277, issued February 20, 1996 to L. Pierce et al. (device for monitoring the water level of a container and for adding water to the container); U.S. Pat. No. 5,791,083, issued August 11, 1998 to K.P. Giangrossi (Christmas tree watering apparatus with level indicator); U.S. Pat. No. 5,799,437, issued September 1, 1998 to G. Evans et al. (cut plant watering apparatus); U.S. Pat. No. 5,809,691, issued September 22, 1998 to J.L. Frantz (watering bell); U.S. Pat. No. 5,894,695, issued April 20, 1999 to A. Stellatos (tree watering device); U.S. Pat. No. 6,073,390, issued June 13, 2000 to S.R. Baudler (Christmas tree watering device); U.S. Pat. No. 6,082,043, issued July 4, 2000 to S.A. Andrews (Christmas tree watering device); U.S. Pat. No. 6,167,651, issued January 2, 2001 to R.P. Luddy (Christmas tree watering device); and U.S. Pat. No. 6,347,479, issued February 19, 2002 to W.A. Greenberg et al. (Christmas tree watering apparatus).

However, a significant drawback of each of these devices is that they do not allow a person to avoid crawling around the base

of the tree to inspect the level of the water in the tree stand. Instead, a person must still crawl under the tree, sometimes knocking ornaments loose, to determine whether water is needed. Likewise, as a person adds water via the funnel, the person must continually crawl to the stand to ensure that water does not overflow the water receptacle. Moreover, watering a Christmas tree via a funnel requires bringing a loose container of water into the room where the Christmas tree displayed, which is often a room with nice furnishings, and thereby risking spilling water while carrying the loose container, as well as when pouring into the funnel.

The second group of devices for watering a Christmas tree employs devices that use a water storage container with a conduit extending from the container to the water receptacle in a Christmas tree stand. The container is typically camouflaged with an elaborate seasonal disguise and is located on the floor or a piece of furniture near the Christmas tree. The flow of water from the container to the water receptacle is typically regulated by an electronic control or by combining the container with a tree stand especially designed to work with the container.

Examples of these devices are provided by U.S. Pat. No. 4,930,252, issued June 5, 1990 to V.E. Krause et al. (Christmas tree waterer); U.S. Pat. No. 4,993,176, issued February 19, 1991 to V.D. Spinoso (Christmas tree stand watering system); U.S. Pat. No. 5,009,028, issued April 23, 1991 to M.B. Lorenzana et al. (apparatus for supplying water continuously to tree stand); U.S.

Pat. No. 5,076,009, issued December 31, 1991 to M. Cibor (Christmas tree watering system); U.S. Pat. No. 5,279,071, issued January 18, 1994 to D. McDougall (automatic tree and/or plant waterer); U.S. Pat. No. 5,369,910, issued December 6, 1994 to M.J. Copenhaver (Christmas tree stand with remote watering system); U.S. Pat. No. 5,937,574, issued August 17, 1999 to D.R. Jacques (apparatus and method for supplying liquid to a tree stand); U.S. Pat. No. 6,260,303, issued July 17, 2001 to G.L. Sappenfield (Christmas tree feeder); U.S. Pat. No. 6,327,816, issued December 11, 2001 to K.F. Walterscheid (siphon apparatus for watering a Christmas tree); U.S. Pat. No. 6,367,195, issued April 9, 2002 to M.I. Heyworth (Christmas tree watering device); U.S. Pat. No. 6,497,071, issued December 24, 2002 to B. Main et al. (Christmas tree self-watering system); and U.S. Pat. Pub. No. 2002/0108301, published on August 15, 2002 (automatic Christmas tree watering stand).

The major drawback of these devices is that the water storage container takes up floor space, which is typically scarce during the holiday season. Also, in addition to requiring the expense of seasonal camouflage, the devices typically require the expense of elaborate controls or a specialized tree stand. Furthermore, they require carrying a loose container of water into the room where the Christmas tree is located and transfer of the water to the device.

Additionally, U.S. Pat. No. 5,513,677, issued May 7, 1996 to O.T. McCurry, teaches a Christmas tree watering device that

includes a water receptacle disguised as a Christmas ornament. The receptacle is tied to the branch of a Christmas tree and attached to a conduit extending from the receptacle to the tree stand. Because the water receptacle is tied to the tree, it includes a second opening through which water is added. The device also includes a grommet connector assembly and one of three manual flow regulation means, namely, a stopcock, a clamp or a valve. The drawbacks of this device are similar to those discussed above. First, to determine whether adjustment of the manual flow regulator is needed, a person must inspect the water receptacle in the tree stand, which typically entails crawling under the tree. Second, because the device's receptacle is tied to the tree, water must be brought to it in a loose container thereby risking spills. And third, manufacture of the device requires expenditures related to disguising the receptacle.

Similarly, U.S. Pat. No. 5,867,929, issued February 9, 1999 to Y.S. Jung et al., teaches a Christmas tree watering device that includes a water reservoir disguised as a Christmas ornament that has an inlet for receiving water and has a water flow regulator that can either be an electronic device or a sponge-based device. The drawbacks of the Jung device are similar to those for the McCurry device discussed above with the addition of requiring expenditures for an electronic flow regulator.

None of the above inventions and patents, taken either singly or in combination, is seen to describe the instant

invention as claimed and, therefore, a Christmas tree watering system solving the aforementioned problems is desired.

SUMMARY OF THE INVENTION

5 The Christmas tree watering system is an apparatus for watering a Christmas tree that includes a water reservoir connected to a length of conduit. The reservoir and conduit are configured to automatically supply water to a Christmas tree stand using the force of gravity and vacuum control, thereby
10 allowing for adequate watering of the tree without requiring someone to crawl under the tree to inspect the level of water in the tree stand. Significant features of the device include its simple design and its inexpensive manufacture.

 The device is constructed of plastic and has no moving
15 parts. The water reservoir is a container with one opening on its bottom for connecting to the upper end of the conduit, and a hook on its top for securing it to the branch of a Christmas tree. The conduit includes a strip of hook and loop fastener material for securing its lower end to the trunk of the tree at a
20 point approximately one inch above the bottom of the trunk.

 When the device is secured to a Christmas tree that is positioned in a conventional tree stand, water within the reservoir flows down the conduit and into the water receptacle in the tree stand. As water flows out of the conduit, air bubbles back up the conduit and into the reservoir. The water flowing out of the conduit flows into the tree stand until the water

level within the tree stand reaches the level of the lower end of the conduit or a level about one inch above the bottom of the tree trunk. Once the water level reaches the lower end of the conduit, the water creates a seal around the end of the conduit and thereby prevents air from flowing up to the reservoir. This creates a vacuum in the reservoir that stops the flow of water out of the reservoir.

As the tree absorbs water, the water level in the tree stand continues to drop. When the water level drops to a point below the lower end of the conduit, the seal is broken and air is allowed to bubble up to the reservoir, thereby allowing water to flow down from the reservoir. The water flows until the water level in the tree stand reaches a point where it seals off the lower end of the conduit again. This cycle continues automatically. When the reservoir becomes empty or nearly empty, it can be detached from the conduit, removed from the tree and refilled remotely. The reservoir can then be reattached to the conduit.

Accordingly, it is a principal object of the invention to provide a Christmas tree watering system that allows for easy and convenient maintenance of the water level in a Christmas tree stand and that does not require a person to crawl under the Christmas tree to check the water level in the tree stand.

It is another object of the invention to provide a Christmas tree watering system that employs gravity and vacuum control to automatically supply water, as needed, to a Christmas tree stand.

It is a further object of the invention to provide a Christmas tree watering system that includes a reservoir that can be filled at a remote location.

5 Still another object of the invention is to provide a Christmas tree watering system that has no moving parts and is simple and inexpensive to manufacture.

10 It is an object of the invention to provide improved elements and arrangements thereof for the purposes described which is inexpensive, dependable and fully effective in accomplishing its intended purposes.

These and other objects of the present invention will become readily apparent upon further review of the following specification and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is an environmental, perspective view of a Christmas tree watering system according to the present invention shown secured to a Christmas tree with a portion of the tree broken away to show the reservoir.

Fig. 2 is a perspective view of a Christmas tree watering system according to the present invention.

Fig. 3 is an exploded, perspective view of the system of Fig. 2.

Fig. 4 is a perspective view of an alternative water reservoir for a Christmas tree watering system according to the present invention.

Fig. 5 is a perspective view of another alternative water reservoir for a Christmas tree watering system according to the present invention.

Similar reference characters denote corresponding features consistently throughout the attached drawings.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention is a Christmas tree watering system, designated generally as 10 in the drawings, for supplying water to the water receptacle of a conventional Christmas tree stand that is supporting a Christmas tree. Referring to Figs. 2 and 3, the system 10 includes a water reservoir 20 connected to a length of conduit 40.

The water reservoir 20 is a substantially cylindrical plastic container formed with a bottom opening 22 extending downwardly and a support loop 24 extending upwardly. The bottom portion 28 of the water reservoir 20 tapers to the bottom opening 22 to allow all water therein 20 to flow to the opening 22. The outer surface 26 of the bottom opening 22 is threaded to mate with the coupler 42 on the upper end 46 of the conduit 40. A support rod 30 with a proximal hook 34 and a distal hook 32 extends from the support loop 24. The proximal hook 34 is attached to the support loop 24, and the distal hook 32 is shaped and dimensioned for attachment to the branch B of a Christmas tree T. Water can only be added to and removed from the reservoir 20 via the bottom opening 22.

The conduit 40 is constructed of plastic and is substantially pliable with an upper end 46 and a lower end 44. The upper end 46 adjoins a threaded coupler 42 that mates with the bottom opening 22 of the reservoir 20. The lower end 44 has a strip of hook and loop fastener material 48 attached thereto. The strip of hook and loop material 48 extends from lower end 44 and secures the lower end 44 to the trunk of a Christmas tree T by being wrapped around both the tree trunk T and the lower end

44. To prevent collapsing, the lower end 44 of conduit 40 is rigid.

The system 10 supplies water to a Christmas tree stand S using the force of gravity and vacuum control, and thereby allows for adequate watering of the tree T without requiring a person to crawl under the tree T to inspect the level of water in the tree stand S.

As shown in Fig. 1, the device 10 is secured to a Christmas tree T that is positioned in a conventional tree stand S by hooking the distal hook 32 to a branch in the tree T and wrapping the strip of hook and loop material 48 around the trunk of the tree T and the lower end 44.

When the device 10 is secured to a Christmas tree T with the lower end 44 secured to a point approximately one inch above the bottom of the trunk, water within the reservoir 20 flows down the conduit 40 and into the water receptacle in the tree stand S. As water flows out of the conduit 40, air bubbles back up the conduit 40 and into the reservoir 20. The water flowing out of the conduit 40 flows into the tree stand S until the water level WL within the tree stand reaches the level of the lower end 44 of the conduit 40 or a level about one inch above the bottom of the tree trunk. Once the water level WL reaches the lower end 44 of

the conduit 40, the water creates a seal around the end 44 of the conduit 40 and thereby prevents air from flowing up to the reservoir 20. This creates a vacuum in the reservoir 20 that stops the flow of water out of the reservoir 20.

5 As the tree T absorbs water, the water level WL in the tree stand S continues to drop. When the water level WL drops to a point below the lower end 44 of the conduit 40, the seal is broken and air is allowed to bubble up to the reservoir 20, thereby allowing water to flow down from the reservoir 20. The
10 water flows until the water level WL in the tree stand S reaches a point where it seals off the lower end 44 of the conduit 40 again. This cycle continues automatically. When the reservoir 20 becomes empty, or nearly empty, reservoir 20 can be detached from the conduit 40, removed from the tree T and refilled
15 remotely. The reservoir 20 can then be reattached to the conduit 40.

20 The system 10 is designed for simple and inexpensive manufacture and has no moving parts. In addition to plastic, the system 10 can also be constructed of other waterproof materials, such as rubber or metal.

 In an alternative embodiment, the reservoir 120 is configured with a strip of hook and loop material 130 attached to

the support loop 124, as shown in Fig. 4. In this embodiment, the strip of hook and loop material 130 is used to attach the reservoir 120 to the branch of a Christmas tree.

5 In a second alternative embodiment, the reservoir 220 does not include a support loop, but instead has a strip of hook and loop material 230 attached around the middle of reservoir 230, as shown in Fig. 5. The strip of hook and loop material 230 extends from the reservoir 220 and secures the reservoir 220 to the trunk of a Christmas tree by being wrapped around both the tree trunk
10 and the reservoir 20.

It is to be understood that the present invention is not limited to the embodiments described above, but encompasses any and all embodiments within the scope of the following claims.